Report on Unified Video KYC Project

Blockchain and Machine Learning Powered Unified Video KYC Framework is an R&D proposal implemented by Institute for Development and Research in Banking Technology **(IDRBT)** collaboration with Indian Institute of Technology, Bhilai **(IIT Bhilai)** and International Institute of Information Technology, Hyderabad **(IIIT - Hyderabad),**which is going to submitted to the Ministry of Electronics & Information Technology Government of India.Chief Investigator of this project is Dr.Rajarshi Pal ,Assistant Professor (Center of Excellence in Cyber Security).Duration of this project is 2 years.
This project came into existence because the existing KYC framework consists of some drawbacks.At present, the video KYC is carried out separately by individual REs for their customers.The repetition of video KYC for a single customer across several REs is a drawback in the ecosystem.A working model of this solution will be developed and demonstrated on the real-world data set, which will be collected as part of the project.As a byproduct of the video KYC system, an audio-visual conversational bot to carry out video KYC sessions with customers in English language .

This framework is envisaged as multiple regulated entities (REs) in the financial sector will collaborate to carry out video KYC of their customers and to share KYC data among themselves on a need-to-know basis. A customer will initiate a video KYC session with his/her bank. The bank will verify the identity of the customer (face and document verification). Once successfully verified, the customer's KYC data will be stored in a storage in the bank. Simultaneously, metadata of this KYC data will be pushed to create a new transaction in the blockchain. This metadata will also contain the hash values of the KYC data as well as the recorded video session. All REs will be part of the blockchain. Hence, record of the transaction is added in the ledger of every RE. Later, if the customer approaches a different RE for another financial service, the second RE will request for the required KYC data from the first bank based on the consent of the customer. The second bank will use the hash of the KYC data (which is stored in the ledger) to ensure the integrity of the fetched data. The immutability property of blockchain will guarantee that the participating REs can trust each other about the correctness of shared data. Thus, the customer need not carry out a video KYC process across multiple REs. It saves resources and operational costs for the REs. Moreover, the video KYC infrastructure may be maintained at the premises of the REs, thus addressing the related concerns on privacy and security of customers' KYC data. It is to be noted that the proposed architecture will facilitate regulator-specific controls to their own set of REs. Then, the video KYC data need not be shared between REs across regulators. But, it will also have provision for a regulatory-handshake so that KYC data can be exchanged in a trusted manner among REs across multiple regulators. Another key component of the KYC process is verification of the identity and documents being uploaded by the customer. Machine learning powered algorithms will be developed for this purpose. Specific algorithms will be developed for (a) face spoof detection, (b) establishing identity through biometrics (mainly face and voice), (c) document verification, etc. Each participating RE will use the same services for the above verification tasks. It will help to trust the verification process being carried out by individual REs. These services will be hosted in a community cloud infrastructure. Each RE will be part of this community cloud infrastructure. Moreover, to automate the interaction between the customer and the RE, a monolingual (English language) the audio-visual bot will be developed. It will enable service delivery on a 24x7 basis. Customers need not wait for a fixed time-slot for establishing their video KYC. The proposed framework will also support (a) leveraging the DigiLocker facility of the Ministry of Electronics and Information Technology (MeitY), Government of India to retrieve customer's documents and (b) integrating with the existing CKYC facility to store and retrieve verified KYC data.

A high-level process flow of the proposed video KYC solution is shown in Fig. 1

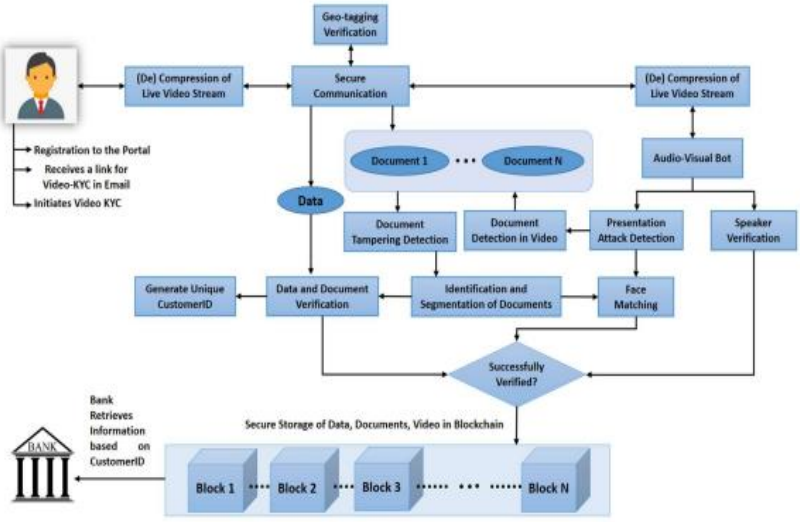

Fig:1

The Blockchain technology brings several advantages in the Video KYC application: (1) Enables banks to share KYC costs, resulting in significant cost savings across the industry. (2) Immutable Proof of identity into the online world (3) Achieving greater transparency (4) Reducing operational inefficiencies (5) Enabling up-to-date customer data. The proposed Video KYC architecture is depicted in Fig. 2 to leverage a blockchain architecture.

The VideoKYC framework will be designed using a permissioned blockchain platform.

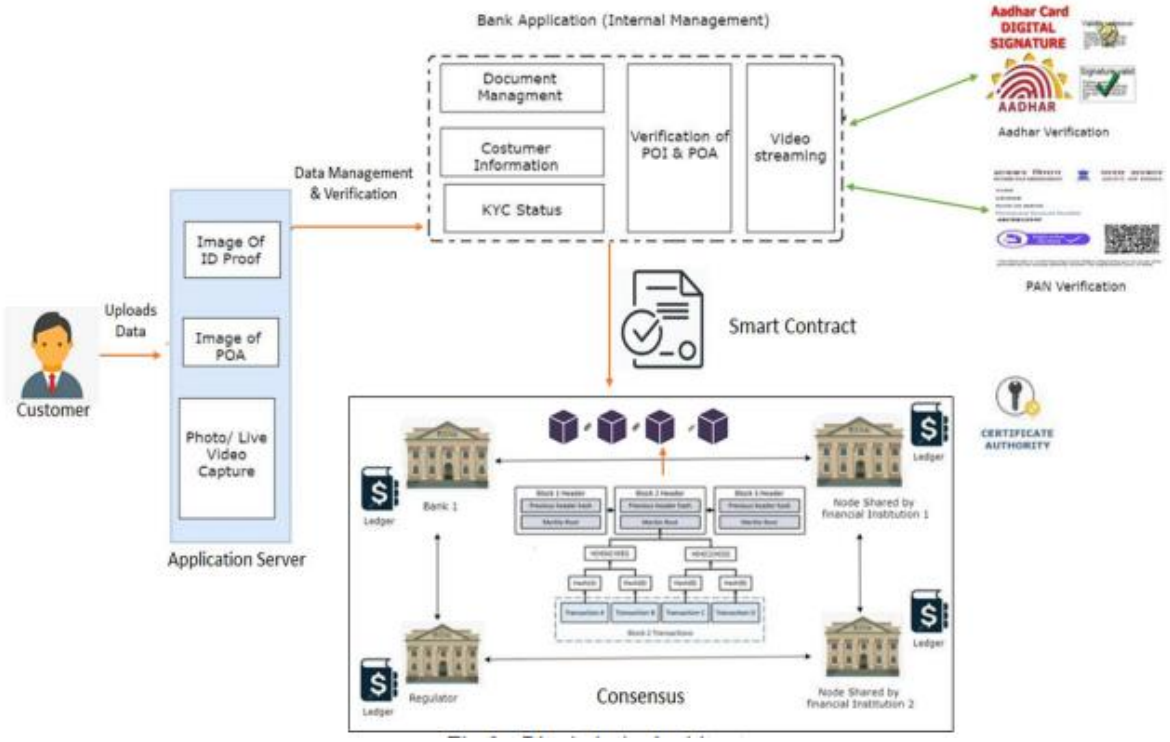

Fig:2

The developed solution would be ready for transfer to the financial institutions. After completion of the project, workshops for knowledge transfer and awareness to banks and other stakeholders would be conducted by IDRBT in collaboration with IITBhilai and IIIT Hyderabad.